

# Package: babette (via r-universe)

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**Title** Control 'BEAST2'

**Version** 2.3.4

**Description** 'BEAST2' (<<https://www.beast2.org>>) is a widely used Bayesian phylogenetic tool, that uses DNA/RNA/protein data and many model priors to create a posterior of jointly estimated phylogenies and parameters. 'BEAST2' is commonly accompanied by 'BEAUti 2', 'Tracer' and 'DensiTree'. 'babette' provides for an alternative workflow of using all these tools separately. This allows doing complex Bayesian phylogenetics easily and reproducibly from 'R'.

**License** GPL-3

**RoxygenNote** 7.2.3

**VignetteBuilder** knitr

**URL** <https://docs.ropensci.org/babette/> (website),  
<https://github.com/ropensci/babette>

**BugReports** <https://github.com/ropensci/babette/issues>

**Depends** beautier (>= 2.6.12), beastier (>= 2.5), mauricer (>= 2.5.2),  
R (>= 3.5.0), tracerer

**Imports** phangorn, rlang (>= 1.1.0), stringr, xml2

**Suggests** ape, ggplot2, knitr, lintr, nLTT, rappdirs, rmarkdown,  
spelling, testthat (>= 2.1.0)

**Language** en-US

**Encoding** UTF-8

**SystemRequirements** BEAST2 (<https://www.beast2.org/>)

**Repository** <https://ropensci.r-universe.dev>

**RemoteUrl** <https://github.com/ropensci/babette>

**RemoteRef** master

**RemoteSha** 2150931d20ab12209439eaad977d9f2cbee44eac

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bbt_continue	<i>Continue a BEAST2 run</i>
--------------	------------------------------

---

### Description

Do a full run: create a 'BEAST2' configuration file (like 'BEAUti 2'), run 'BEAST2', parse results (like 'Tracer')

### Usage

```
bbt_continue(fasta_filename, inference_model, beast2_options)
```

### Arguments

fasta\_filename a FASTA filename  
inference\_model a Bayesian phylogenetic inference model, as returned by [create\\_inference\\_model](#)  
beast2\_options 'BEAST2' options, as can be created by [create\\_beast2\\_options](#)

### Value

a list with the following elements:

- estimates: a data frame with 'BEAST2' parameter estimates

- [alignment\_id]\_trees: a multiPhylo containing the phylogenies in the 'BEAST2' posterior. [alignment\_id] is the ID of the alignment. For example, when running `bbt_run_from_model` with `anthus_aco.fas`, this element will have name `anthus_aco_trees`
- operators: a data frame with the 'BEAST2' MCMC operator acceptances
- output: a numeric vector with the output sent to standard output and error streams
- ns: (optional) the results of a marginal likelihood estimation, will exist only when `create_ns_mcmc` was used for `mcmc`. This structure will contain the following elements:
  - `marg_log_lik` the marginal log likelihood estimate
  - `marg_log_lik_sd` the standard deviation around the estimate
  - `estimates` the parameter estimates created during the marginal likelihood estimation
  - `trees` the trees created during the marginal likelihood estimation

### Author(s)

Richèl J.C. Bilderbeek

### See Also

Use [remove\\_burn\\_ins](#) to remove the burn-ins from the posterior's estimates (`posterior$estimates`)

### Examples

```
if (beautier::is_on_ci() && is_beast2_installed()) {
  beautier::remove_beautier_folders()
  beautier::check_empty_beautier_folders()

  # A simple FASTA file
  fasta_filename <- beautier::get_beautier_path("test_output_0.fas")

  # Simple short inference
  inference_model <- create_test_inference_model()

  # Default BEAST2 options
  beast2_options <- create_beast2_options()

  bbt_run_from_model(
    fasta_filename = fasta_filename,
    inference_model = inference_model,
    beast2_options = beast2_options
  )

  bbt_continue(
    fasta_filename = fasta_filename,
    inference_model = inference_model,
    beast2_options = beast2_options
  )

  # Cleanup
  bbt_delete_temp_files(
    inference_model = inference_model,
```

```

    beast2_options = beast2_options
  )
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()
}

```

---

bbt\_delete\_temp\_files *Delete all the temporary files created by [bbt\\_run\\_from\\_model](#)*

---

### Description

Delete all the temporary files created by [bbt\\_run\\_from\\_model](#)

### Usage

```
bbt_delete_temp_files(inference_model, beast2_options)
```

### Arguments

inference\_model  
 a Bayesian phylogenetic inference model, as returned by [create\\_inference\\_model](#)

beast2\_options 'BEAST2' options, as can be created by [create\\_beast2\\_options](#)

### Value

Nothing.

### Author(s)

Richèl J.C. Bilderbeek

### Examples

```

if (beastier::is_on_ci() && is_beast2_installed()) {
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()

  # Do a minimal run
  inference_model <- create_test_inference_model()
  beast2_options <- create_beast2_options()
  bbt_run_from_model(
    fasta_filename = get_fasta_filename(),
    inference_model = inference_model,
    beast2_options = beast2_options
  )

  # Cleanup
  bbt_delete_temp_files(
    inference_model = inference_model,

```

```

    beast2_options = beast2_options
  )

  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()
}

```

---

bbt\_run

*Run BEAST2*


---

## Description

Do a full BEAST2 run: create a 'BEAST2' configuration file (like 'BEAUti 2'), run 'BEAST2', parse results (like 'Tracer')

## Usage

```

bbt_run(
  fasta_filename,
  tipdates_filename = NA,
  site_model = beautier::create_jc69_site_model(),
  clock_model = beautier::create_strict_clock_model(),
  tree_prior = beautier::create_yule_tree_prior(),
  mrca_prior = NA,
  mcmc = beautier::create_mcmc(),
  beast2_input_filename = beastier::create_temp_input_filename(),
  rng_seed = 1,
  beast2_output_state_filename = beastier::create_temp_state_filename(),
  beast2_path = beastier::get_default_beast2_path(),
  overwrite = TRUE,
  verbose = FALSE
)

```

## Arguments

fasta_filename	a FASTA filename
tipdates_filename	name of the file containing tip dates
site_model	one site model, see <a href="#">create_site_models</a>
clock_model	one clock model, see <a href="#">create_clock_model</a>
tree_prior	one tree priors, as created by <a href="#">create_tree_prior</a>
mrca_prior	one Most Recent Common Ancestor prior, as returned by <a href="#">create_mrca_prior</a>
mcmc	the MCMC options, see <a href="#">create_mcmc</a>

beast2_input_filename	path of the 'BEAST2' configuration file. By default, this file is put in a temporary folder with a random filename, as the user needs not read it: it is used as input of 'BEAST2'. Specifying a <code>beast2_input_filename</code> allows to store that file in a more permanently stored location.
rng_seed	the random number generator seed. Must be either NA or a positive non-zero value. An RNG seed of NA results in 'BEAST2' picking a random seed.
beast2_output_state_filename	name of the final state file created by 'BEAST2', containing the operator acceptances. By default, this file is put a temporary folder with a random filename, as the user needs not read it: its content is parsed and returned by this function. Specifying a <code>beast2_output_state_filename</code> allows to store that file in a more permanently stored location.
beast2_path	name of either a 'BEAST2' binary file (usually simply <code>beast</code> ) or a 'BEAST2' jar file (usually has a <code>.jar</code> extension). Use <code>get_default_beast2_bin_path</code> to get the default BEAST binary file's path Use <code>get_default_beast2_jar_path</code> to get the default BEAST jar file's path
overwrite	will 'BEAST2' overwrite files? Like 'BEAST2', this is set to <b>TRUE</b> by default. If <b>TRUE</b> , 'BEAST2' will overwrite the <code>beast2_options\$output_state_filename</code> if its present. If <b>FALSE</b> , 'BEAST2' will not overwrite the <code>beast2_options\$output_state_filename</code> if its present and <code>babette</code> will give an error message. Note that if <code>overwrite</code> is set to <b>FALSE</b> when a <code>tracelog</code> (see <code>create_tracelog</code> ), <code>screenlog</code> (see <code>create_screenlog</code> ) or <code>treelog</code> (see <code>create_treelog</code> ) file already exists, 'BEAST2' (and thus <code>babette</code> ) will freeze.
verbose	set to <b>TRUE</b> for more output

### Details

Prefer using `bbt_run_from_model`, as it has a cleaner interface.

### Value

a list with the following elements:

- `estimates`: a data frame with 'BEAST2' parameter estimates
- `[alignment_id]_trees`: a `multiPhylo` containing the phylogenies in the 'BEAST2' posterior. `[alignment_id]` is the ID of the alignment. For example, when running `bbt_run` with `anthus_aco.fas`, this element will have name `anthus_aco_trees`
- `operators`: a data frame with the 'BEAST2' MCMC operator acceptances
- `output`: a numeric vector with the output sent to standard output and error streams
- `ns`: (optional) the results of a marginal likelihood estimation, will exist only when `create_ns_mcmc` was used for the MCMC. This structure will contain the following elements:
  - `marg_log_lik` the marginal log likelihood estimate
  - `marg_log_lik_sd` the standard deviation around the estimate
  - `estimates` the parameter estimates created during the marginal likelihood estimation
  - `trees` the trees created during the marginal likelihood estimation

**Author(s)**

Richèl J.C. Bilderbeek

**See Also**

Use [remove\\_burn\\_ins](#) to remove the burn-ins from the posterior's estimates (`posterior$estimates`)

**Examples**

```
if (beastier::is_on_ci() && is_beast2_installed()) {
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()

  # Setup for a short run
  mcmc <- create_test_mcmc()

  # Store filenames for cleanup.
  # Note that 'bbt_run_from_model' allows for easier cleanup
  mcmc$tracelog$filename <- tempfile()
  mcmc$treelog$filename <- tempfile()
  mcmc$screenlog$filename <- tempfile()
  beast2_input_filename <- tempfile()
  beast2_output_state_filename <- tempfile()

  bbt_run(
    fasta_filename = get_babette_path("anthus_aco.fas"),
    beast2_input_filename = beast2_input_filename,
    beast2_output_state_filename = beast2_output_state_filename,
    mcmc = mcmc
  )

  # Cleanup
  # Again, note that 'bbt_run_from_model' allows for easier cleanup
  file.remove(mcmc$tracelog$filename)
  file.remove(mcmc$treelog$filename)
  file.remove(mcmc$screenlog$filename)
  file.remove(beast2_input_filename)
  file.remove(beast2_output_state_filename)
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()
}
```

---

bbt\_run\_from\_model      *Run BEAST2*

---

**Description**

Do a full run: create a 'BEAST2' configuration file (like 'BEAUti 2'), run 'BEAST2', parse results (like 'Tracer')

**Usage**

```
bbt_run_from_model(
  fasta_filename,
  inference_model = beautier::create_inference_model(),
  beast2_options = beastier::create_beast2_options()
)
```

**Arguments**

`fasta_filename` a FASTA filename

`inference_model` a Bayesian phylogenetic inference model, as returned by [create\\_inference\\_model](#)

`beast2_options` 'BEAST2' options, as can be created by [create\\_beast2\\_options](#)

**Value**

a list with the following elements:

- `estimates`: a data frame with 'BEAST2' parameter estimates
- `[alignment_id]_trees`: a multiPhylo containing the phylogenies in the 'BEAST2' posterior. `[alignment_id]` is the ID of the alignment. For example, when running `bbt_run_from_model` with `anthus_aco.fas`, this element will have name `anthus_aco_trees`
- `operators`: a data frame with the 'BEAST2' MCMC operator acceptances
- `output`: a numeric vector with the output sent to standard output and error streams
- `ns`: (optional) the results of a marginal likelihood estimation, will exist only when `create_ns_mcmc` was used for `mcmc`. This structure will contain the following elements:
  - `marg_log_lik` the marginal log likelihood estimate
  - `marg_log_lik_sd` the standard deviation around the estimate
  - `estimates` the parameter estimates created during the marginal likelihood estimation
  - `trees` the trees created during the marginal likelihood estimation

**Author(s)**

Richèl J.C. Bilderbeek

**See Also**

Use [remove\\_burn\\_ins](#) to remove the burn-ins from the posterior's estimates (`posterior$estimates`)

**Examples**

```
if (beautier::is_on_ci() && is_beast2_installed()) {
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()

  # Simple short inference
```



```
inference_model <- create_test_inference_model()

# Default BEAST2 options
beast2_options <- create_beast2_options()

bbt_run_from_model(
  fasta_filename = get_babette_path("anthus_aco.fas"),
  inference_model = inference_model,
  beast2_options = beast2_options
)

# Cleanup
bbt_delete_temp_files(
  inference_model = inference_model,
  beast2_options = beast2_options
)
beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
}
```

---

bbt\_self\_test

*Do a self test to verify [babette](#) that works correctly.*

---

## Description

Do a self test to verify [babette](#) that works correctly.

## Usage

```
bbt_self_test(beast2_options = beastier::create_beast2_options())
```

## Arguments

beast2\_options 'BEAST2' options, as can be created by [create\\_beast2\\_options](#)

## Value

Nothing. Will raise an exception if something is wrong.

## Author(s)

Richèl J.C. Bilderbeek

## Examples

```
if (beautier::is_on_ci() && is_beast2_installed()) {
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()

  bbt_self_test()
}
```

```

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
}

```

---

check\_beast2\_pkgs      *Checks if `bbt_run` has the 'BEAST2' packages needed to process its arguments. Will `stop` if not.*

---

### Description

For example, to use a Nested Sampling MCMC, the 'BEAST2' 'NS' package needs to be installed.

### Usage

```
check_beast2_pkgs(mcmc, beast2_path = get_default_beast2_bin_path())
```

### Arguments

mcmc	the MCMC options, see <a href="#">create_mcmc</a>
beast2_path	name of either a 'BEAST2' binary file (usually simply <code>beast</code> ) or a 'BEAST2' jar file (usually has a <code>.jar</code> extension). Use <code>get_default_beast2_bin_path</code> to get the default BEAST binary file's path Use <code>get_default_beast2_jar_path</code> to get the default BEAST jar file's path

### Value

Nothing.

### Examples

```

if (beastier::is_on_ci() && is_beast2_installed()) {
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()

  # Minimal BEAST2 setup
  check_beast2_pkgs(mcmc = create_mcmc())

  # BEAST2 with NS package installed
  if (is_beast2_ns_pkg_installed()) {
    check_beast2_pkgs(mcmc = create_ns_mcmc())
  }

  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()
}

```

---

create\_test\_bbt\_run\_output

*Get an example output of `bbt_run` or `bbt_run_from_model`.*

---

### **Description**

This output is used in testing.

### **Usage**

```
create_test_bbt_run_output()
```

### **Value**

the same results as `bbt_run` or `bbt_run_from_model`

### **Author(s)**

Richèl J.C. Bilderbeek

### **Examples**

```
beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()

create_test_bbt_run_output()

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

create\_test\_ns\_output *Create NS testing output*

---

### **Description**

Create testing output similar to when running a 'BEAST2' run with nested sampling

### **Usage**

```
create_test_ns_output()
```

### **Value**

a text of type character vector.

**Author(s)**

Richèl J.C. Bilderbeek

**See Also**

Use [parse\\_beast2\\_output\\_to\\_ns](#) to parse this output to a Nested Sampling result. See [create\\_ns\\_mcmc](#) to see how to do a marginal likelihood estimation using Nested Sampling.

**Examples**

```
beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()

create_test_ns_output()

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

default\_params\_doc      *This function does nothing. It is intended to inherit is parameters' documentation.*

---

**Description**

This function does nothing. It is intended to inherit is parameters' documentation.

**Usage**

```
default_params_doc(
  beast2_input_filename,
  beast2_options,
  beast2_output_log_filename,
  beast2_output_state_filename,
  beast2_output_trees_filenames,
  beast2_path,
  beast2_working_dir,
  cleanup,
  clock_model,
  clock_models,
  fasta_filename,
  fasta_filenames,
  inference_model,
  mcmc,
  mrca_prior,
  mrca_priors,
  overwrite,
  rng_seed,
```

```

    site_model,
    site_models,
    tipdates_filename,
    tree_prior,
    tree_priors,
    verbose
)

```

## Arguments

**beast2\_input\_filename**  
 path of the 'BEAST2' configuration file. By default, this file is put in a temporary folder with a random filename, as the user needs not read it: it is used as input of 'BEAST2'. Specifying a `beast2_input_filename` allows to store that file in a more permanently stored location.

**beast2\_options** 'BEAST2' options, as can be created by [create\\_beast2\\_options](#)

**beast2\_output\_log\_filename**  
 name of the log file created by 'BEAST2', containing the parameter estimates in time. By default, this file is put a temporary folder with a random filename, as the user needs not read it: its content is parsed and returned by this function. Specifying a `beast2_output_log_filename` allows to store that file in a more permanently stored location.

**beast2\_output\_state\_filename**  
 name of the final state file created by 'BEAST2', containing the operator acceptances. By default, this file is put a temporary folder with a random filename, as the user needs not read it: its content is parsed and returned by this function. Specifying a `beast2_output_state_filename` allows to store that file in a more permanently stored location.

**beast2\_output\_trees\_filenames**  
 name of the one or more trees files created by 'BEAST2', one per alignment. By default, these files are put a temporary folder with a random filename, as the user needs not read it: their content is parsed and returned by this function. Specifying `beast2_output_trees_filenames` allows to store these one or more files in a more permanently stored location.

**beast2\_path** name of either a 'BEAST2' binary file (usually simply `beast`) or a 'BEAST2' jar file (usually has a `.jar` extension). Use `get_default_beast2_bin_path` to get the default BEAST binary file's path Use `get_default_beast2_jar_path` to get the default BEAST jar file's path

**beast2\_working\_dir**  
 the folder 'BEAST2' will work in. This is an (empty) temporary folder by default. This allows to call 'BEAST2' in multiple parallel processes, as each process can have its own working directory

**cleanup** set to `FALSE` to keep all temporary files

**clock\_model** one clock model, see [create\\_clock\\_model](#)

**clock\_models** one or more clock models, see [create\\_clock\\_models](#)

**fasta\_filename** a FASTA filename

fasta_filenames	one or more FASTA filename, each with one alignment
inference_model	a Bayesian phylogenetic inference model, as returned by <a href="#">create_inference_model</a>
mcmc	the MCMC options, see <a href="#">create_mcmc</a>
mrca_prior	one Most Recent Common Ancestor prior, as returned by <a href="#">create_mrca_prior</a>
mrca_priors	a list of one or more Most Recent Common Ancestor priors, as returned by <a href="#">create_mrca_prior</a>
overwrite	will 'BEAST2' overwrite files? Like 'BEAST2', this is set to <b>TRUE</b> by default. If <b>TRUE</b> , 'BEAST2' will overwrite the <code>beast2_options\$output_state_filename</code> if its present. If <b>FALSE</b> , 'BEAST2' will not overwrite the <code>beast2_options\$output_state_filename</code> if its present and <a href="#">babette</a> will give an error message. Note that if <code>overwrite</code> is set to <b>FALSE</b> when a <code>tracelog</code> (see <a href="#">create_tracelog</a> ), <code>screenlog</code> (see <a href="#">create_screenlog</a> ) or <code>treelog</code> (see <a href="#">create_treelog</a> ) file already exists, 'BEAST2' (and thus <a href="#">babette</a> ) will freeze.
rng_seed	the random number generator seed. Must be either NA or a positive non-zero value. An RNG seed of NA results in 'BEAST2' picking a random seed.
site_model	one site model, see <a href="#">create_site_models</a>
site_models	one or more site models, see <a href="#">create_site_models</a>
tipdates_filename	name of the file containing tip dates
tree_prior	one tree priors, as created by <a href="#">create_tree_prior</a>
tree_priors	one or more tree priors, see <a href="#">create_tree_priors</a>
verbose	set to <b>TRUE</b> for more output

**Note**

This is an internal function, so it should be marked with `@noRd`. This is not done, as this will disallow all functions to find the documentation parameters

**Author(s)**

Richèl J.C. Bilderbeek

---

get\_alignment\_ids\_from\_xml

*Get the alignment IDs from one or more 'BEAST2' XML input files.*

---

**Description**

Get the alignment IDs from one or more 'BEAST2' XML input files.

**Usage**

```
get_alignment_ids_from_xml(xml_filename)
```

**Arguments**

xml\_filename     name of a 'BEAST2' XML input file.

**Value**

a character vector with one or more alignment IDs.

**Author(s)**

Richèl J.C. Bilderbeek

**Examples**

```
beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()

alignment_ids <- get_alignment_ids_from_xml(
  get_babette_path("anthus_2_4.xml")
)

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

*get\_babette\_path*     *Get the full path of a file in the inst/extdata folder*

---

**Description**

Get the full path of a file in the inst/extdata folder

**Usage**

```
get_babette_path(filename)
```

**Arguments**

filename     the file's name, without the path

**Value**

the full path of the filename, if and only if the file is present. Will stop otherwise.

**Author(s)**

Richèl J.C. Bilderbeek

**See Also**

for more files, use [get\\_babette\\_paths](#)

**Examples**

```
beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()

get_babette_path("anthus_aco.fas")

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

get\_babette\_paths      *Get the full paths of files in the inst/extdata folder*

---

**Description**

Get the full paths of files in the inst/extdata folder

**Usage**

```
get_babette_paths(filenamees)
```

**Arguments**

filenamees      the files' names, without the path

**Value**

the filenamees' full paths, if and only if all files are present. Will stop otherwise.

**Author(s)**

Richèl J.C. Bilderbeek

**See Also**

for one file, use [get\\_babette\\_path](#)

**Examples**

```
beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()

get_babette_paths(c("anthus_aco.fas", "anthus_nd2.fas"))

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```



---

parse\_beast2\_output    *Process the 'BEAST2' output dependent on 'BEAST2' package specifics*

---

**Description**

Process the 'BEAST2' output dependent on 'BEAST2' package specifics

**Usage**

```
parse_beast2_output(out, inference_model)
```

**Arguments**

out                    a list with the complete babette output, with elements:

- output textual output of a 'BEAST2' run

inference\_model       a Bayesian phylogenetic inference model, as returned by [create\\_inference\\_model](#)

**Value**

complete babette output with added attributes, which depends on the 'BEAST2' package.

- marg\_log\_lik the marginal log likelihood estimate
- marg\_log\_lik\_sd the standard deviation around the estimate
- estimates the parameter estimates created during the marginal likelihood estimation
- trees the trees created during the marginal likelihood estimation

**Author(s)**

Richèl J.C. Bilderbeek

---

parse\_beast2\_output\_to\_ns    *Parse BEAST2 NS output*

---

**Description**

Parse the BEAST2 output when run with the BEAST2 NS ('Nested Sampling') package.

**Usage**

```
parse_beast2_output_to_ns(output)
```

**Arguments**

output            screen output

**Value**

a list with the following elements:

- marg\_log\_lik the marginal log likelihood estimate
- marg\_log\_lik\_sd the standard deviation around the estimate

**Author(s)**

Richèl J.C. Bilderbeek

**See Also**

use [create\\_test\\_ns\\_output](#) to obtain a test screen output.

**Examples**

```
beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()

parse_beast2_output_to_ns(
  output = create_test_ns_output()
)

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

plot\_densitree            *Draw multiple trees on top of one another.*

---

**Description**

Draw multiple trees on top of one another.

**Usage**

```
plot_densitree(phylos, ...)
```

**Arguments**

phylos            one or more phylogenies, must be of class multiPhylo  
...                options to be passed to phangorn's [densiTree](#) function

**Value**

nothing. Will produce a plot.

**Author(s)**

Richèl J.C. Bilderbeek

**Examples**

```
if (beastier::is_on_ci() && is_beast2_installed()) {
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()

  inference_model <- create_test_inference_model()
  beast2_options <- create_beast2_options()

  out <- bbt_run_from_model(
    get_babette_path("anthus_aco.fas"),
    inference_model = inference_model,
    beast2_options = beast2_options
  )
  bbt_delete_temp_files(
    inference_model = inference_model,
    beast2_options = beast2_options
  )

  plot_densitree(out$anthus_aco_trees)

  # Clean up temporary files created by babette
  bbt_delete_temp_files(
    inference_model = inference_model,
    beast2_options = beast2_options
  )
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()
}
```

---

prepare\_file\_creation *Internal function to prepare for 'BEAST2' creating files*

---

**Description**

The inference model and 'BEAST2' options contain paths that may point to sub-sub-sub folders. Create those folders and test if these folders can be written to

**Usage**

```
prepare_file_creation(inference_model, beast2_options)
```

**Arguments**

inference\_model

a Bayesian phylogenetic inference model, as returned by [create\\_inference\\_model](#)

beast2\_options 'BEAST2' options, as can be created by [create\\_beast2\\_options](#)

**Value**

Nothing.

**Examples**

```
# This example will fail on the CRAN
# r-oldrel-macos-x86_64 platform
if (rappdirs::app_dir()$os != "mac") {
  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()

  # For a test inference model, the files can be prepared
  inference_model <- create_test_inference_model()
  beast2_options <- create_beast2_options()
  prepare_file_creation(inference_model, beast2_options)

  beastier::remove_beastier_folders()
  beastier::check_empty_beastier_folders()
}
```

---

update\_babette      *Deprecated function.*

---

**Description**

Update all babette dependencies, by installing their latest versions.

**Usage**

```
update_babette(upgrade = "default")
```

**Arguments**

upgrade      Deprecated.

**Details**

See <https://github.com/ricelbilderbeek/babetteinstall> how to do this.

**Value**

Nothing.

**Author(s)**

Giovanni Laudanno, Richèl J.C. Bilderbeek

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